

SPECIFIC MEMORANDUM OF AGREEMENT (SMA)  
between  
The United States Department of Energy (DOE)  
and  
The Power Reactor and Nuclear Fuel Development Corporation of Japan (PNC)  
for a Joint Research and Development Study of Plutonium (Pu) Isotopic  
and Concentration Measurements for Chemical Processing Plant  
Input Accountability Tank Solutions by Gamma Measurement of Resin Bead  
Samples

1. Introduction

Under the provisions of Article II of the Agreement between PNC and DOE for Cooperation in Research and Development concerning Nuclear Material Control and Accounting Measures for Safeguards (the Agreement), DOE and PNC undertake to carry out a cooperative effort in Pu isotopic and concentration measurement for input accountability tank solutions by gamma measurement of resin bead samples. This method may facilitate the application of safeguards at future chemical processing plants.

2. Program Management

The Los Alamos National Laboratory (LANL), which is a contractor of DOE, and PNC shall both be responsible for carrying out this technology development task in a cooperative effort. The work to be done is identified in Appendix I. The use of LANL and PNC and their management and operating personnel in carrying out the work is authorized on a non-interference basis, i.e., the work performed under this SMA shall not interfere with work related to the prime mission of LANL and PNC. DOE and LANL and PNC shall work directly with each other in planning the task and resolving programmatic and technical questions. LANL and PNC shall start by developing and exchanging work plans with projected milestones for the task. They shall update the work plans as the work progresses.

LANL and PNC shall prepare brief bimonthly letter progress reports and circulate them to each other.

LANL and PNC shall prepare and present written and oral reports at meetings of the Permanent Coordinating Group (PCG) established under Article IV of the Agreement.

No public releases (including news releases, technical publications and advertising) relating to this SMA and the work hereunder shall be issued by either Party without prior coordination with the other Party.

As noted in Article XII of the Agreement, all information transmitted by one Party to the other under this SMA shall be appropriate and accurate to the best knowledge and belief of the Supplying and Transmitting Party.

LANL and PNC and persons acting on their behalf shall make best efforts to assure that the use of any such information or data to be furnished does not infringe privately owned rights.

Neither Party to this SMA is obligated to contribute more than is necessary for completion of its own responsibilities under the scope of work in Appendix I.

3. Fiscal Management

Each party shall be responsible for its cost incurred in the task identified in Appendix I to this SMA. No financial payment to the one Party by the other Party shall be made under this SMA.

4. General Terms and Provisions

The work shall be conducted in accordance with the provisions of the Agreement between PNC and DOE for Cooperation in Research and Development Concerning Nuclear Material Control and Accounting Measures for Safeguards.

5. Duration and Termination

This SMA shall enter into force upon the date when all signatures are received. It shall continue in force for a period of 9 months, or until all Parties mutually agree that all activities under this SMA are completed.

Executed on this 31st day of March, 1990.

For the United States Department  
of Energy

For the Power Reactor and  
Nuclear Fuel Development  
Corporation of Japan

Name: W. L. Barker  
William L. Barker  
Acting Deputy Assistant  
Secretary for Security Affairs

Name: S. Tsukada  
Shinichi Tsukada  
Director, Technical  
Management Division

Specific Memorandum of Agreement (continued)  
Appendix I

1. Study Outline

This program involves the development of plutonium (Pu) isotopic concentration measurement method for input accountability tank by gamma measurement of resin bead samples.

Phase I of this study will include examination of the preparation method for resin bead samples from an input accountability tank, data collection from measurement by existing high resolution gamma spectrometers, and analysis of the data. This phase will require the development and evaluation of a new measurement system and will require remeasurement of the resin bead samples by new system.

Phase II will include preparation of spiked samples for the determination of plutonium concentrations and will include error analysis of the results using the new systems.

2. Site

This task will be conducted at TRP, Ibaraki, Japan and Los Alamos National Laboratory (LANL), New Mexico, U.S.A.

3. Programmatic Responsibilities

- A. PNC shall be responsible for finding the best means of Pu separation from dissolver solution and for preparing unspiked and spiked samples. PNC will also be responsible for obtaining raw gamma spectrometry data from resin bead samples and for the delivery to LANL of the floppy disk loaded with the data collected by the existing high resolution gamma spectrometers.
- B. LANL shall be responsible for analysis of data sent from PNC, review of gamma measurement technique on the resin bead at the ending stage of data analysis, development of a new measurement system, and delivery of the system to PNC.

The measurement by a new gamma spectrometer will be performed by LANL staff members.

A final report will be prepared cooperatively by PNC and LANL after completion of an analysis of measurement errors in the results from the new system.

#### 4. Schedule

	<u>1989</u>				<u>1990</u>			
(PNC)	1	2	3	4	1	2	3	4
Phase I	x	x						
Phase II	x	x	x					
(LANL)								
Phase I	x	x						
Phase II								